

**1992
Striped Bass
Fisheries Monitoring Report**

Massachusetts

**Prepared for the ASMFC Striped Bass
Technical Committee - March 1993**

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Introduction

This report characterizes the commercial and recreational striped bass fisheries that were conducted in Massachusetts during 1992. The information was collected from monitoring programs which are considered to be essential elements of the long-term management approach described in Section 7 of the Atlantic States Marine Fisheries Commission's (ASMFC) Fisheries Management Report No. 15 (Supplement to the Striped Bass FMP-Amendment #4). Several sources of information have been used to estimate harvest, total catch (which include fish that are caught but released alive), and catch composition (size, sex, and age). These included, Massachusetts Division of Marine Fisheries (DMF) and National Marine Fisheries Service (NMFS) based programs (Diodati, 1990).

Harvest and Losses

Commercial Fishery

Both proposed and actual season events are summarized in Table A. It took less time to reach the harvest cap in 1992, the season length was 39 days compared to 59 in 1991. Fish dealers were required to obtain special authorization from the DMF in addition to standard seafood dealer permits in order to purchase striped bass directly from fishermen. Dealer reporting requirements included bi-weekly telephone reports of all striped bass purchases; a toll-free number was supplied for this purpose. The frequency of reporting was increased to weekly as the landings cap was approached. Dealers were also required to provide a written transcript consisting of purchase dates, number of fish, pounds of fish, and names and permit numbers of fishermen that they purchased from. Transcripts were to be forwarded to the DMF within 15 days of the close of the season.

Fishermen had to have a commercial fishing permit as well as a special striped bass fishing permit to sell their catch. They also had to file catch reports at the end of the season, which included the name of the dealer(s) that they sold to as well as extensive information describing their catch composition and catch rates. In addition, a number of fishermen voluntarily provided daily fishing diaries.

Table A. Season Attributes

	<u>Proposed</u>	<u>Actual</u>
Season	1 Jul-30 Sep	1 Jul-8 Aug
Cap	238,000 lbs	239,100 lbs
Gears	Hook & Line	Hook & Line
Min. Sz.	36 in. (TI)	36 in. (TI)

Harvest Levels and Catch Composition

One hundred thirty five dealers were authorized to purchase striped bass during 1992 compared to 92 authorizations issued in 1991. The dealer telephone survey was used to gauge the distance to the harvest cap, while the dealer written transactions provided the final estimate of the commercial harvest, which totaled 239,200 pounds (11,268 fish).

The issuance of permits to fishermen in 1992 increased 7 % from 1991 levels, to 1,861. Striped bass harvest information has been collected from 65% of permit holders to date and indicates 197,600 pounds (9,471 fish) were sold. These figures are expected to closely approximate the harvest estimate reported by dealers when outstanding reports are collected.

Fisherman reports, which provided information on the disposition of the catch (fish sold, released sub-legals, etc...), were used to estimate catch weight and size composition by category. The catch for each group was expanded by 16%, to compensate for the under-reporting of fishermen relative to dealers ($1 - 9,471/11,268$). A weight/length distribution from 629 fish (12,000 lbs) sampled from the commercial harvest by the DMF, was used to characterize the catch composition of the SOLD harvest. A functional geometric regression of weight on length was conducted on this same sample to derive the following weight-length relationship:

$$W = .000669L^{2.83} \quad (1)$$

where W equals weight in pounds and L equals total length in inches. Expression (1) was used to estimate any missing length or weight value.

Tables 1 and 2 and Figure A display the catch composition by catch disposition for the commercial fishery in terms of number and pounds of fish, respectively. The total catch of 83,700 striped bass (1,070,200 lbs) was dominated by the SUB-LEGAL category;

79% by number (66,300 fish) and 64% by weight (757,200 lbs). Fifteen percent of the 1992 catch was greater than legal size (36 inches), compared to approximately 10% of the 1990-1991 catch (Diodati and Hoopes, 1992).

Age and Sex Composition

Age was determined by examination of scales. Sex was determined by visual inspection of gonadal tissue (Sykes Method). Five hundred five striped bass sampled from the commercial harvest had an age distribution ranging from 7 to 19 years (Table 3 and Figure B).

Eighty seven percent of the sample consisted of individuals aged 8-9.

This sample also provided information on sex composition. Consistent with past studies (Diodati and Hoopes 1992), over 90% of

FIGURE A. DISPOSITION OF CATCH

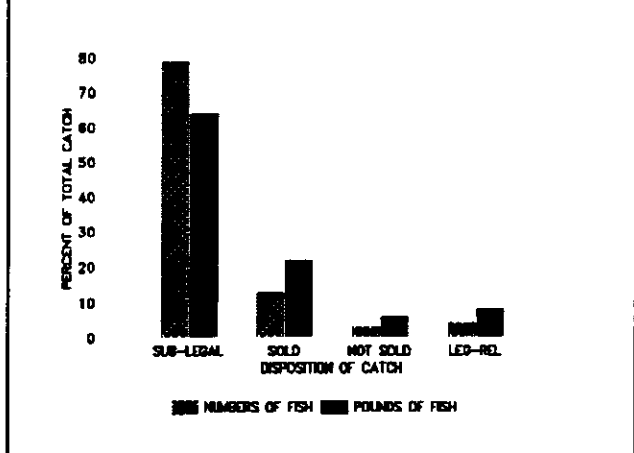
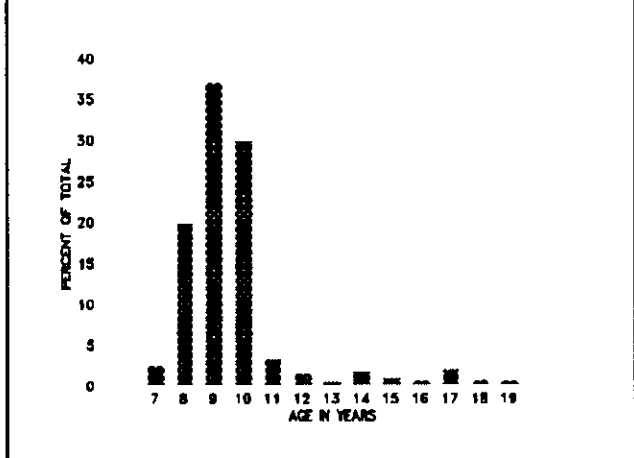


FIGURE B. AGE COMPOSITION OF COMMERCIAL HARVEST



the individuals were female. The ratio was 467:9:29, for females:males:unknown.

Estimation of Effort and CPUE

To compensate for non-reporting, catch report effort data was expanded by 16% (as described in a previous section). An estimate of total effort in hours fished was obtained from the standard catch report, while an estimate of average hours per trip was obtained from voluntary dairies. Total hours fishing amounted to 69,983 and hours per trip averaged 5.1. These figures imply 13,722 total trips, 6.1 fish per trip and 1.2 fish per hour. CPUE in terms of catch per hour reflected an 11% decrease from 1991 levels.

Characterization of Losses

Potential background mortality as a result of hook and release fishing and poaching was estimated in both the commercial and recreational fisheries. An investigation of several netting operations chosen because of their areal and temporal proximity to well known striped bass migration routes and periods, found neither direct or indirect estimators of

background mortality as a result of illegal fishing operations (primarily netting) or bycatch.

Estimates of non-harvest mortality due to the commercial fishery is given in Table B. Following procedures outlined by Sheppard (1992), poaching mortality (p) was estimated as

TABLE B. COMMERCIAL NON-HARVEST MORTALITY (NUMBER OF FISH).

MORTALITY TYPE	CATCH CATEGORY		
	SUB-LEG	LEG	TOT
POACHING	862		862
RELEASE	5,234	282	5,516
TOTALS	6,096	282	6,378

1.3% of the total sub-legal catch . Losses attributed to hook-release mortality were estimated by using a hook-release mortality rate (h) of 8% (Diodati 1990) applied against the total sub-legal catch minus that fraction estimated as poached. Losses resulting from release mortality of legal size fish was estimated simply as total catch of LEGAL SIZE RELEASED x (h). Using the average weights provided in Table 2, total weight of the non-harvest mortality was estimated to have been 68,778 pounds.

Recreational Fishery

The Massachusetts 1992 recreational fishery had no seasonal restrictions nor were participants required to obtain a fishing permit. Catch was restricted to one fish per angler per day, and a 36 inch minimum size (Tl) was enforced. Harvest levels and total catch were estimated from the NMFS MRFSS. Since 1988, annual MRFSS estimates of Massachusetts striped bass catch (in numbers of fish) have achieved a percent standard error (pse) of 16 or less. The same sources of information described in previous sections were used to estimate the size distribution of the recreational catch.

Harvest levels

The MRFSS preliminary estimate for total catch in numbers (including fish released) is 980,274 striped bass (pse = 13.5), nearly a 41% increase compared to the previous year. Information from those DMF catch reports that indicated that no bass were sold (303 anglers), was used to estimate the proportion of sub-legal size fish in the total catch. This group reported that 89% of the bass they caught were of sub-legal size. An examination of 1991

data indicated that 92% of the total catch was of sub-legal size. The assumption that this fraction (89%) represented what occurred in the 1992 recreational fishery seems reasonable, since recent recreational fishing surveys conducted in Rhode Island, New York, and Connecticut waters reported a similar range, 94%-97% (Crecco, pers. comm.). The catch of sub-legals was therefore estimated to have been 872,444 fish ($980,274 \times 0.89$).

The MRFSS estimate of harvest, 73,757 fish ($pse = 22.8$) was added to the estimated number of sub-legals and this sum was subtracted from the total catch to determine the number of legal size fish caught and released (34,073 fish). Legal size fish that were released represented 32% of all legal size fish caught. This represented a 26% decrease from the 1991 level.

Tables 4 and 5 display the estimated size distributions of catch by disposition in number and pounds, respectively. This report relied on the MRFSS estimate for harvest weight (1,286,131 lbs) while weight of released sub-legal (8,956,208 lbs) and legal size fish (830,658 lbs) was estimated by the techniques and samples described in previous sections.

Estimation of Effort and CPUE

Catch report information from anglers that did not sell any fish indicated that 17,474 hours were spent catching 17,604 striped bass. The average hours per trip estimated from data in voluntary diaries of 55 anglers was 5 (compared to 3.7 in 1991). These figures imply 3,495 total trips. Total striped bass related trips in the recreational fishery was then estimated by dividing the total catch (980,274 fish) by 17,604 fish and multiplying by 3,495

trips. The total, 194,618 trips, was 27% higher than last years figure, while total hours fished (976,616) showed a 42% increase over 1991 levels. CPUE by trip and hour equaled 5 and 1 fish, respectively. The CPUE in hours was the same as the 1991 estimate. It appears that the sharp increase in recreational catch from 1991 to 1992 was primarily attributable to increased effort.

Characterization of Losses

The same methods and rates previously described (under **Characterization of Losses** in the commercial fishery section) were used to estimate recreational losses. Poaching of sub-legal size fish totaled 11,342 fish (116,820 pounds), release mortality of sub-legals was 68,888 fish (709,548 pounds,) and release mortality of legal size stripers was 2,726 fish. (66,510 pounds).

Estimated Total Losses

Total estimated loss of striped bass during 1992 was 174,359 fish weighing 2,486,466 pounds (Table 6). This amount was equivalent to 16% of the combined total catches of the commercial and recreational fisheries. The total striped bass loss during 1992 represented increases of 68% and 82% in number and pounds of fish respectively, over 1991 estimated losses. The legal harvest and release mortality that occurred in the 1992 recreational fishery caused nearly 82% of the year's total losses. Only 12% of all striped bass caught (in both the commercial and recreational fisheries) were greater than 36 inches (Table 7).

Although there may be other sources of bycatch mortality not included in this study, there is no evidence to suggest that the

missing elements would substantially change any values in Table 6. DMF regulatory procedures appear to minimize the potential for high bycatch mortality.

Required Fishery Independent Monitoring Programs

Massachusetts Tagging Study

Massachusetts began a striped bass tagging study in October 1991. Three hundred eighty seven fish were collected for tagging by rod and reel fishing aboard chartered vessels during 17 trips in 1991 and 894 stripers were collected during 29 trips in 1992. Floy internal anchor tags supplied by the USFWS were applied. The size distribution of fish tagged in 1992 is shown in Table 8.

TABLE 1.
ESTIMATED SIZE DISTRIBUTION OF THE MASSACHUSETTS COMMERCIAL
STRIPED BASS CATCH DURING 1992 (NUMBERS OF FISH).

*SIZE (TL)	SUB-LEGAL RELEASE	SOLD	NOT SOLD	LEGAL SIZE RELEASE	TOTAL	PERC.	CUM. PERC.
17	478				478	0.6	0.6
18	502				502	0.6	1.2
19	478				478	0.6	1.7
20	1,768				1,768	2.1	3.9
21	72				72	0.1	3.9
22	1,075				1,075	1.3	5.2
23	2,890				2,890	3.5	8.7
24	3,559				3,559	4.3	12.9
25	4,347				4,347	5.2	18.1
26	2,293				2,293	2.7	20.9
27	3,488				3,488	4.2	25.0
28	6,617				6,617	7.9	32.9
29	2,054				2,054	2.5	35.4
30	5,805				5,805	6.9	42.3
31	454				454	0.5	42.9
32	5,828				5,828	7.0	49.8
33	6,760				6,760	8.1	57.9
34	9,937		12		9,949	11.9	69.8
35	7,883	18	12		7,913	9.5	79.2
36		870	0		870	1.0	80.3
37		2,373	604	999	3,976	4.8	85.0
38		3,188	118	143	3,450	4.1	89.2
39		1,830	592	761	3,183	3.8	93.0
40		1,304	189	238	1,732	2.1	95.0
41		344	261	333	938	1.1	96.1
42		362	272	190	825	1.0	97.1
43		181	71	190	442	0.5	97.7
44		127	47	0	174	0.2	97.9
45		72	118	285	476	0.6	98.4
46		127	47	48	222	0.3	98.7
47		91	59	95	245	0.3	99.0
48		91	47	0	138	0.2	99.2
49		109	95	95	299	0.4	99.5
50		72	36	95	203	0.2	99.8
51		54	24	0	78	0.1	99.8
52		18	0	0	18	0.0	99.9
53		18	0	48	66	0.1	100.0
54		18	24		42	0.0	100.0
55			0		0	0.0	100.0
56			12		12	0.0	100.0
TOTALS:	66,287	11,268	2,629	3,520	83,704		
AVE. SIZE	29.5	38.5	40.3	39.9	31.6		

*SIZE INTERVAL 17 CONTAINS FISH MEASURING FROM 16.1 TO 17 INCHES.

TABLE 2.
ESTIMATED SIZE DISTRIBUTION OF THE MASSACHUSETTS COMMERCIAL
STRIPED BASS CATCH DURING 1992 (POUNDS OF FISH).

*SIZE (TL)	SUB-LEGAL RELEASE	SOLD	NOT SOLD	LEGAL SIZE RELEASE	TOTAL	PERC.	CUM. PERC.
17	970				970	0.1	0.1
18	1,197				1,197	0.1	0.2
19	1,329				1,329	0.1	0.3
20	5,685				5,685	0.5	0.9
21	265				265	0.0	0.9
22	4,528				4,528	0.4	1.3
23	13,806				13,806	1.3	2.6
24	19,177				19,177	1.8	4.4
25	26,293				26,293	2.5	6.8
26	15,497				15,497	1.4	8.3
27	26,224				26,224	2.5	10.7
28	55,148				55,148	5.2	15.9
29	18,909				18,909	1.8	17.7
30	58,810				58,810	5.5	23.2
31	5,045				5,045	0.5	23.6
32	70,885				70,885	6.6	30.3
33	89,696				89,696	8.4	38.6
34	143,473	0	171		143,644	13.4	52.1
35	123,543	279	186		124,008	11.6	63.6
36	0	14,506	0		14,506	1.4	65.0
37		42,782	11,078	18,322	72,182	6.7	71.7
38		61,983	2,342	2,823	67,148	6.3	78.0
39		38,283	12,606	16,202	67,091	6.3	84.3
40		29,318	4,334	5,439	39,091	3.7	87.9
41		8,297	6,390	8,166	22,853	2.1	90.1
42		9,350	7,152	4,996	21,497	2.0	92.1
43		4,997	1,994	5,340	12,331	1.2	93.2
44		3,733	1,419	0	5,152	0.5	93.7
45		2,273	3,780	9,109	15,162	1.4	95.1
46		4,233	1,609	1,616	7,458	0.7	95.8
47		3,214	2,137	3,434	8,785	0.8	96.6
48		3,411	1,815	0	5,226	0.5	97.1
49		4,339	3,848	3,864	12,051	1.1	98.3
50		3,063	1,528	4,091	8,682	0.8	99.1
51		2,430	1,077	0	3,507	0.3	99.4
52		856	0	0	856	0.1	99.5
53		903	0	2,412	3,315	0.3	99.8
54		952	1,266		2,218	0.2	100.0
55			0		0	0.0	100.0
56			702		702	0.1	100.1
TOTALS:	680,479	239,200	64,732	85,813	1,070,225		
AVE. SIZE	10.2	21.1	24	23.4	16.3		

*SIZE INTERVAL 17 CONTAINS FISH MEASURING FROM 16.1 TO 17 INCHES.

TABLE 3.
AGE, SIZE AND SEX COMPOSITION OF STRIPED BASS SAMPLED
FROM THE MASSACHUSETTS COMMERCIAL HARVEST (JUL-AUG 1992).

AGE	NO.	PERCENT	AVE. LENGTH	MIN-MAX LENGTH	AVE. WEIGHT	*SEX RATIO
7	12	2.4	36.3	34.4-37.9	17.5	11:1:0
8	100	19.8	37.1	35.3-40.1	18.6	95:3:2
9	186	36.8	37.6	35.0-41.5	19.5	173:3:11
10	151	29.9	38.5	35.0-43.5	20.9	136:3:12
11	16	3.2	39.6	36.6-43.5	22.6	14:0:2
12	7	1.4	41.3	38.3-44.7	27.1	7:0:0
13	2	0.4	43.6	42.7-44.6	31.0	2:0:0
14	8	1.6	45.1	41.2-48.6	34.3	8:0:0
15	4	0.8	47.6	46.6-50.0	38.0	4:0:0
16	3	0.6	45.6	41.9-48.0	38.3	3:0:0
17	10	2.0	47.7	42.3-53.7	40.0	8:0:2
18	3	0.6	49.7	47.8-52.9	45.8	3:0:0
19	3	0.6	49.2	48.4-49.6	44.0	3:0:0

TABLE 4.
ESTIMATED SIZE DISTRIBUTION OF THE MASSACHUSETTS RECREATIONAL
STRIPED BASS CATCH DURING 1992 (NUMBERS OF FISH).

*SIZE (TL)	SUB-LEGAL RELEASE	HARVEST	LEGAL SIZE RELEASE	TOTAL	PERC.	CUM. PERC.
17	6,288			6,288	0.6	0.6
18	6,602			6,602	0.7	1.3
19	6,288			6,288	0.6	2.0
20	23,265			23,265	2.4	4.3
21	943			943	0.1	4.4
22	14,148			14,148	1.4	5.9
23	38,042			38,042	3.9	9.7
24	46,845			46,845	4.8	14.5
25	57,220			57,220	5.8	20.4
26	30,182			30,182	3.1	23.4
27	45,902			45,902	4.7	28.1
28	87,087			87,087	8.9	37.0
29	27,038			27,038	2.8	39.8
30	76,398			76,398	7.8	47.6
31	5,973			5,973	0.6	48.2
32	76,712			76,712	7.8	56.0
33	88,974			88,974	9.1	65.1
34	130,788	331		131,119	13.4	78.4
35	103,750	331		104,081	10.6	89.1
36		0		0	0.0	89.1
37		16,868	9,669	26,538	2.7	91.8
38		3,307	1,381	4,689	0.5	92.3
39		16,537	7,367	23,905	2.4	94.7
40		5,292	2,302	7,594	0.8	95.5
41		7,276	3,223	10,500	1.1	96.5
42		7,607	1,842	9,449	1.0	97.5
43		1,984	1,842	3,826	0.4	97.9
44		1,323	0	1,323	0.1	98.0
45		3,307	2,763	6,070	0.6	98.6
46		1,323	460	1,783	0.2	98.8
47		1,654	921	2,575	0.3	99.1
48		1,323	0	1,323	0.1	99.2
49		2,646	921	3,567	0.4	99.6
50		992	921	1,913	0.2	99.8
51		661	0	661	0.1	99.9
52		0	0	0	0.0	99.9
53		0	460	460	0.0	99.9
54		661		661	0.1	100.0
55		0		0	0.0	100.0
56		331		331	0.0	100.0
TOTALS:	872,444	73,757	34,073	980,274	100.0	
AVE. SIZE	29.5	40.5	40.6	30.7		

*SIZE INTERVAL 17 CONTAINS FISH MEASURING FROM 16.1 TO 17 INCHES.

TABLE 5.
ESTIMATED SIZE DISTRIBUTION OF THE MASSACHUSETTS RECREATIONAL
STRIPED BASS CATCH DURING 1992 (POUNDS OF FISH).

*SIZE (TL)	SUB-LEGAL RELEASE	HARVEST	LEGAL SIZE RELEASE	TOTAL	PERC.	CUM. PERC.
17	12,767			12,767	0.1	0.1
18	15,759			15,759	0.1	0.3
19	17,491			17,491	0.2	0.4
20	74,825			74,825	0.7	1.1
21	3,483			3,483	0.0	1.1
22	59,589			59,589	0.5	1.7
23	181,709			181,709	1.6	3.3
24	252,397			252,397	2.3	5.6
25	346,053			346,053	3.1	8.7
26	203,961			203,961	1.8	10.5
27	345,154			345,154	3.1	13.7
28	725,835			725,835	6.6	20.2
29	248,877			248,877	2.2	22.5
30	774,034			774,034	7.0	29.5
31	66,406			66,406	0.6	30.1
32	932,964			932,964	8.4	38.5
33	1,180,542			1,180,542	10.7	49.1
34	1,888,336	3,361		1,891,697	17.1	66.2
35	1,626,025	3,648		1,629,673	14.7	80.9
36		0		0	0.0	80.9
37		217,747	177,352	395,098	3.6	84.5
38		46,042	27,322	73,365	0.7	85.2
39		247,773	156,833	404,606	3.7	88.8
40		85,177	52,651	137,827	1.2	90.1
41		125,595	79,046	204,641	1.8	91.9
42		140,570	48,357	188,928	1.7	93.6
43		39,196	51,687	90,883	0.8	94.5
44		27,887	0	27,887	0.3	94.7
45		74,295	88,175	162,471	1.5	96.2
46		31,625	15,639	47,264	0.4	96.6
47		42,012	33,241	75,253	0.7	97.3
48		35,673	0	35,673	0.3	97.6
49		75,634	37,402	113,035	1.0	98.6
50		30,032	39,602	69,634	0.6	99.2
51		21,175	0	21,175	0.2	99.4
52		0	0	0	0.0	99.4
53		0	23,351	23,351	0.2	99.7
54		24,893		24,893	0.2	99.9
55		0		0	0.0	99.9
56		13,796		13,796	0.1	100.0
TOTALS:	8,956,208	1,286,131	830,658	11,072,997	99.9	
AVE. SIZE	10.3	24.8	24.4	11.3		

*SIZE INTERVAL 17 CONTAINS FISH MEASURING FROM 16.1 TO 17 INCHES.

TABLE 6.
PRELIMINARY ESTIMATES OF STRIPED BASS LOSSES IN
MASSACHUSETTS FOR 1992.

CATEGORY	NUMBER	POUNDS	AVE WEIGHT
1/COMMERCIAL			
LEGAL HARVEST	11,268	239,200	21.1
POACHING	862	8,792	10.1
RELEASE SUB-LEGAL	5,234	52,863	10.1
RELEASE LEGAL	282	6,599	23.4
SUB-TOTAL:	17,646	307,454	17.4
RECREATIONAL			
LEGAL HARVEST	73,757	1,286,131	24.8
POACHING	11,342	116,823	10.3
RELEASE SUB-LEGAL	68,888	709,548	10.3
RELEASE LEGAL	2,726	66,510	24.4
SUB-TOTAL:	156,713	2,179,012	13.9
GRAND-TOTAL:	174,359	2,486,466	14.3

1/Harvest NOT SOLD from Tables 1&2 is not recorded here, since this type of harvest was most likely accounted for as part of the recreational harvest.

TABLE 7.

ESTIMATED SIZE DISTRIBUTION OF THE MASSACHUSETTS COMMERCIAL AND
RECREATIONAL STRIPED BASS CATCH DURING 1992 (NUMBERS OF FISH).

	SUB-LEGAL TL RELEASE	HARVEST	LEGAL SIZE RELEASE	TOTAL	PERC.	CUM. PERC.
17	6,766	0	0	6,766	0.6	0.6
18	7,104	0	0	7,104	0.7	1.3
19	6,766	0	0	6,766	0.6	1.9
20	25,033	0	0	25,033	2.4	4.3
21	1,015	0	0	1,015	0.1	4.4
22	15,223	0	0	15,223	1.4	5.8
23	40,932	0	0	40,932	3.9	9.7
24	50,404	0	0	50,404	4.7	14.4
25	61,567	0	0	61,567	5.8	20.2
26	32,475	0	0	32,475	3.1	23.3
27	49,389	0	0	49,389	4.7	28.0
28	93,704	0	0	93,704	8.8	36.8
29	29,092	0	0	29,092	2.7	39.5
30	82,202	0	0	82,202	7.7	47.3
31	6,427	0	0	6,427	0.6	47.9
32	82,541	0	0	82,541	7.8	55.6
33	95,734	0	0	95,734	9.0	64.7
34	140,725	331	0	141,056	13.3	78.0
35	111,633	349	0	111,982	10.6	88.5
36	0	870	0	870	0.1	88.6
37	0	19,241	10,668	29,910	2.8	91.4
38	0	6,496	1,524	8,020	0.8	92.2
39	0	18,367	8,128	26,495	2.5	94.7
40	0	6,596	2,540	9,136	0.9	95.5
41	0	7,621	3,556	11,177	1.1	96.6
42	0	7,970	2,032	10,002	0.9	97.5
43	0	2,166	2,032	4,198	0.4	97.9
44	0	1,450	0	1,450	0.1	98.1
45	0	3,380	3,048	6,428	0.6	98.7
46	0	1,450	508	1,958	0.2	98.8
47	0	1,744	1,016	2,760	0.3	99.1
48	0	1,414	0	1,414	0.1	99.2
49	0	2,755	1,016	3,771	0.4	99.6
50	0	1,065	1,016	2,081	0.2	99.8
51	0	716	0	716	0.1	99.9
52	0	18	0	18	0.0	99.9
53	0	18	508	526	0.0	99.9
54	0	680	0	680	0.1	100.0
55	0	0	0	0	0.0	100.0
56	0	331	0	331	0.0	100.0
TOTALS:	938,731	85,025	37,593	1,061,349		
AVE SIZE:	29.5	40.6	40.6	30.1		

*SIZE INTERVAL 17 CONTAINS FISH MEASURING FROM 16.1 TO 17 INCHES.

TABLE 8.
SIZE DISTRIBUTION OF STRIPED BASS TAGGED DURING THE
MASSACHUSETTS 1992 TAGGING STUDY.

TL	NUMBER	PERC.	CUM. PERC.	POUNDS	PERC.	CUM. PERC.
21	3	0.3	0.3	11	0.1	0.1
22	4	0.4	0.8	17	0.1	0.2
23	16	1.8	2.6	76	0.7	0.9
24	15	1.7	4.3	81	0.7	1.6
25	27	3.0	7.3	163	1.4	3.0
26	52	5.8	13.1	351	3.1	6.1
27	67	7.5	20.6	504	4.4	10.5
28	62	6.9	27.5	517	4.5	15.0
29	40	4.5	32.0	368	3.2	18.2
30	62	6.9	38.9	628	5.5	23.6
31	44	4.9	43.8	489	4.3	27.9
32	62	6.9	50.8	754	6.6	34.5
33	85	9.5	60.3	1,128	9.8	44.3
34	72	8.1	68.3	1,040	9.0	53.3
35	92	10.3	78.6	1,442	12.5	65.9
36	68	7.6	86.2	1,154	10.0	75.9
37	40	4.5	90.7	734	6.4	82.3
38	21	2.3	93.1	415	3.6	85.9
39	24	2.7	95.7	511	4.4	90.3
40	13	1.5	97.2	297	2.6	92.9
41	6	0.7	97.9	147	1.3	94.2
42	4	0.4	98.3	105	0.9	95.1
43	1	0.1	98.4	28	0.2	95.4
44	1	0.1	98.5	30	0.3	95.6
45	1	0.1	98.7	32	0.3	95.9
46	1	0.1	98.8	34	0.3	96.2
47	2	0.2	99.0	72	0.6	96.8
48	4	0.4	99.4	153	1.3	98.2
49	2	0.2	99.7	81	0.7	98.9
50	3	0.3	100.0	129	1.1	100.0
TOTAL				894	11,492	
AVE:				31.5	13	
SE:				0.07	0.08	

APPENDIX 1.
 DESCRIPTIVE STATISTICS OF SAMPLES USED TO ESTIMATE THE SIZE
 COMPOSITION OF THE 1992 MASSACHUSETTS STRIPED BASS FISHERY.

CATEGORY	N	AVERAGE LENGTH	SE	AVERAGE WEIGHT	SE
RELSUB	2,276	29.4	0.10	10.2	0.09
SOLD	622	38.5	0.12	21.1	0.23
CONSUM	223	40.3	0.26	23.9	0.49
RELLEG	74	39.9	0.45	23.4	0.81
TAGDAT	894	31.5	0.16	12.0	0.20